Section III:

AMENDMENT UNDER 37 CFR §1.121 to the DRAWINGS

No amendments or changes to the Drawings are proposed.

Section IV:

AMENDMENT UNDER 37 CFR §1.121

REMARKS

Paragraph Numbering

Please note that all arguments, remarks, and quotations in the following paragraphs referring to the present patent application use the paragraph numbers as provided in the pre-grant published patent application.

Rejection under 35 U.S.C. §112, Sixth Paragraph

With regard to the Examiner's question regarding the claim term "hardware means", this was not intended to be a "means for" clause, but was intended to be a generic term for a microprocessor, programmable logic, or custom circuit (emphasis added by Applicant):

> [0060] Turning now to FIG. 1, the logic (10) of the present invention is shown at a high level. **This logic may be implemented in hardware, such as in programmable logic or custom integrated circuits,** in software such as C or Java programs, or using a combination of both. Additionally, the logic may be centrally located, or may be distributed among two or more platforms such as servers, computers, and circuit cards.

By "the logic of the present invention", we are referring to the portion of the invention described by the logical diagrams. In software-based embodiments, the invention would be in part software and in part a microprocessor to execute the software:

> [0067] The invention, in one available embodiment, is realized as a **feature or addition to software products**, such as IBM's grid computing products, **for execution by well-known computing platforms such as personal computers, web servers, and web**

browsers.

We are amending Claim 41 to remove the recitation of "means" to avoid confusion, and by moving the limitations of Claims 42 and 43 into a Markush group to specify the hardware logical processor. Reconsideration of the claim is kindly requested.

Rejections under 35 U.S.C. §101

Regarding the Examiner's request to point out what our "hardware means" are, please refer to the foregoing quotations of our disclosure at paragraphs 0060 and 0067. Reconsideration of the claim is kindly requested.

Responses to our Previous Arguments

We appreciate the Examiner's direct responses to our previous arguments. We respectfully maintain our previous arguments, but we believe the amendment made herein moves the point of disagreement away from whether rating an eBay seller's performance is the same as rating a company or computer which is offering services into a grid computing environment. We maintain that eBay seller ratings are not the same as what we have claimed, but we note also that the previously-relied-upon references have apparently been withdrawn and new references have been employed for rejections over art.

With respect to the Examiner's question regarding whether or not we disclose using our output (our grid vendor rating table) to "control" another machine or system, we respectfully point out that our grid rating table is used to control a Grid Management System, a.k.a. a grid computing control system, to select grid resources for execution of specific OLTP requests (emphasis added by Applicant):

> [0038] A Job/Grid Scheduler ("JGS") (34) retrieves each pending job from the inbound job-queue (33), verifies handling requirements against one or more SLA (305) to determine processing requirements for the job, and then **selects which server or servers (28, 29, 300) to assign to process the job** (32). In this illustration, Server 2 (39) has been selected, so the job (32) is

transferred to Server 2' job queue (36) to be processed when the server becomes available (immediately if adequate processing bandwidth is already available). Some servers may handle their job queues in an intelligent manner, allowing jobs to have priority designation which allows them to be processed quicker or sooner than earlier-received, lower priority jobs.

[0091] The present invention enhances the ability of clients to request specific grid vendors who have historically performed according to a client's preferences, and enhances a **grid computing control system's** ability to select-grid resources and vendors for job assignment who have historically performed according to performance requirements.

With respect to the Examiner's conclusion that the ratings created in our grid vendor rating tables are not used to determine future selection and assignment of jobs to grid vendors, we respectfully disagree and point out this diagram in Figure 6 in which the Grid Resource Rating Logic (which creates the rating table) and the Grid Vendor Rating Table is added to the circular control loop from the SLA/self-reports/stats to the Job Grid Scheduler, which, in turn, then assigns jobs to the job queues differently due to the added information in the rating table information. Please note that our ¶0023 states that Figure 6 shows not only how we produce the grid vendor rating table, but also how it is *used* (e.g. to modify the traditional control of the job assigner portion of the grid) (emphasis added by Applicant):

[0023] FIG. 6 provides details of the logic of the present invention for producing **and using** a grid vendor rating table.

And, subsequent paragraphs clearly describe the production and use of the rating table to affect improved selection of grid resources (emphasis added by Applicant):

> [0044] FIG. 6 illustrates a grid computing environment (60) **enhanced** with the processes and logical devices according to the present invention. A Grid Vendor Rating Table ("GVRT") (63) is provided using a **generation method** described in the following paragraphs.
>
> [0045] When a client (53) submits a job to the grid, the client may optionally access the Grid Vendor Rating Table (63) to review comparative and historical performance data based on client preferences such as cost, completion time, response time, availability and level of security. Thus, a client may enhance its job request to specify or request handling by a specific resource or set of resources. As the Grid Vendor Rating Table is dynamically generated and updated, the client's request become a time-relevant factor in the client's job requirements. Vendors who are aware of the availability of this table to the clients will be motivated to provide systems and resources which consistently perform to specification to increase job flow to their servers, thereby enhancing the overall performance of the grid.
>
> [0046] According to another aspect of the present invention, the **Job/Grid Scheduler is provided access to the Grid Vendor Rating Table (63) to enhance its ability to select resources** which not only appear to be capable of handling the job according to the resources characteristics and the client SLA, but also according to each resource's historical performance.

> [0047] In a further enhanced embodiment of the present invention, the Grid Vendor Rating Table(s) are available to both the client and the JGS such that both entities can select and screen resources which may or may not perform as desired or expected. Separate tables (not shown) may be maintained for each client, each resource, and for **the JGS, allowing a variety of prioritization and factor weighting schemes to be employed to further enhance the selection process**.

Other paragraphs also describe the JGS using the table to enhance or improve the vendor selection process. For these reasons, we kindly request the Examiner to reconsider this conclusion, and to consider the related elements of the claims in view of our disclosure and diagrams.

Rejections under 35 U.S.C. §112, First Paragraph

Regarding to the Examiner's holding of new matter, we are amending our claims to remove the recited OLTP distinction, whereas it is a point of disagreement with the Examiner that appears not to impart patentability in the Examiner's viewpoint. We respectfully maintain that those skilled in the art would recognize batch processing and OLTP are fundamentally different classes of computing, but by removing this from our claims, it allows examination to proceed on points which may yield agreement.

We respectfully maintain the right to file related patent applications directed to OLTP-specific claims, and thus, submit the IDS to place certain extrinsic information regarding OLTP definitions into the record to assist in preserving that option.

With respect to the Examiner's other conclusions regarding new matter, we respectfully ask the Examiner to consider the following portions of our disclosure (emphasis added by Applicant):

"a grid computing control system": (e.g. Grid Management System or GMS):

> [0091] The present invention enhances the ability of clients to request specific grid vendors who have historically performed

according to a client's preferences, and enhances a **grid computing control system**'s ability to select-grid resources and vendors for job assignment who have historically performed according to performance requirements.

"self-reporting Online Transaction Processing computing resources":

Abstract: "The performance of one or more resource vendors in a grid computing environment are automatically rated by receiving one or more resource **self-reports**,. . . "

[0050] The rating logic (62) obtains real-time data **from grid resources (54) in self-reported job statistics** (61), as well as statistics (45) reported from the Results Manager. Preferably, accounting information (34) may also be received by the rating logic (62) to allow it to include cost-to-performance considerations in the rating process.

"jobs completed by said self-reporting Online Transaction Processing computing resources" :

[0039] Eventually, the assigned server completes the job and returns the results (301) to a Job Results Manager ("JRM") (302). The JRM can verify **job completion** and results delivery (303) to the client application (31), and can generate **job completion records** (304) as necessary to achieve billing and invoice functions.

[0062] Following establishment of an SLA, the client's job is submitted (4) and SLA monitoring begins, which tracks vendor performance statistics as previously described. When a **job completes,** the SLA monitoring also stops (5). The job results are compared against SLA (6), including consideration of resource self-reported statistics as previously described, to check if it meets

the SLA requirements (7).

"analyzing by said computing control system performance requirements corresponding to said completed jobs":

Claim 1 as originally filed (claims are part of the disclosure):

> . . . a grid resource analyzer configured to **perform an analysis of said received job results against said client-driven performance criteria and said self-reports,** and configured to produce a grid resource rating table having zero or more sub-ratings, . . .

[0051] The [Grid Resource Rating Logic] GRRL (62) **automatically compares job processing data for each job and each resource against related SLA criterion to determine if contractual agreements were met**. A Grid Vendor Rating Table (43) is created containing the results of the analysis (or updated to contain the results of the most recent analysis), such as the example table shown in FIG. 2. This table may be produced in human readable form, such as in a spreadsheet file or a printed report, and is preferably provided in a machine readable format as well, such as a data file (CSV, binary, DB2, HTML, XML, etc.).

"updating a grid resource rating table" :

[0051] The [Grid Resource Rating Logic] GRRL (62) automatically compares job processing data for each job and each resource against related SLA criterion to determine if contractual agreements were met. A Grid Vendor Rating Table (43) is created containing the results of the analysis (**or updated to contain the results of the most recent analysis**), such as the example table shown in FIG. 2. This table may be produced in human readable form, such as in a spreadsheet file or a printed report, and is preferably provided in a machine readable format as well, such as

a data file (CSV, binary, DB2, HTML, XML, etc.).

selecting by said grid computing control system .. . according to said resource rating table, wherein said selection and assignment is performed according to historical performance against client- driven performance requirements per said grid resource rating table,

For "selecting", please refer to foregoing remarks and quotations.

For "historical performance":

> [0052] As shown in FIG. 2, an example Grid Vendor Rating Table (20) includes one or more entries (e.g. rows in this depiction), **each entry representing one or more performance historical factors** for a particular vendor (e.g. ABC Co. or XYZ co.) (21). Each entry has one or more fields which represent the results of a particular analysis, such as percentage of jobs completed (22), percentage of jobs completed within allowed time constraints (23), responsiveness to jobs which are interactive in nature (24), compliance to cost estimates or cost schedules (25), accuracy of results (26), and an overall or composite vendor rating (27). These are example analyses results only, and do not represent the full scope of possible results, of course.

> [0091] The present invention enhances the ability of clients to request specific **grid vendors who have historically performed according to a client's preferences**, and enhances a grid computing control system's ability to select-grid resources and vendors for job assignment who have historically performed according to performance requirements.

Rejections under 35 U.S.C. §112, Second Paragraph

We respectfully request the Examiner to consider the foregoing remarks and quotations from our disclosure regarding self-reports from grid vendors and grid resources. We have removed the OLTP limitation from present consideration.

Rejections under 35 U.S.C. §101

We respectfully disagree that the specification does not disclose that this is a machine or apparatus, rather, our disclosure, as cited in particular in the foregoing paragraphs, provides that this invention may be realized as a computer system performing certain logical processes, or programmable logic performing certain logical processes, or custom integrated circuit devices performing certain logical processes. We have amended the claims to specify a computing platform's involvement and tie to the invention, as disclosed (Figs. 7 & 8; ¶¶0060 *et seq.*)

We kindly request reconsideration of these rejections.

Rejections under 35 U.S.C. §103(a)

Regarding the rejections under 35 U.S.C. §103(a) over newly-cited Al-Theneyan in view of newly-cited Office Notice, we respectfully disagree with the Examiner's conclusions. We believe some of the conclusions were based upon the Examiner's assumptions of meanings of claim terms due to the holdings that those terms were not explicitly or sufficiently defined in the specification. We believe the foregoing paragraphs and quotations should alleviate any need to presume the scope or meaning of those terms, and as such, the claims should be read in a more precise manner such that they do not read on Al-Theneyan as previously held.

In particular, we note that Al-Theneyan's disclosed methods for selecting a grid resource to which a new processing job will be assigned are based not on historical performance ratings as we have claimed (see citations from our disclosure provided in the foregoing paragraphs), but instead queues new jobs to resources based on the current "status" (e.g. availability) of resources compared to job criteria (emphasis added by Applicant):

Al-Theneyan Pg. 27, lines 1 - 2:

. . . A **ranking mechanism**, based on the application constraints, is used to **select the best resource when multiple resources satisfy the request**.

Please note that the "ranking mechanism" and "ranks" are not described in any further detail in Al-Theneyan.

Al-Theneyan Pg. 29, lines 15 - 16:

. . . The user **selects a resource based on the availability at the job preparation time.** . . .

Please note that we interpret "at the job preparation time" to mean "current", not historical.

Al-Theneyan Pg. 47, line 9:

. . . A **queuing algorithm selects the next job to schedule.**

Please note that we interpret a "queuing algorithm" to be different that a selection algorithm using historical performance.

Al-Theneyan Pg. 48 lines 21 - 22:

. . . **To support prediction**, the *Resource Repository* keeps some **historical performance** information about the resources. . . .

Please note that "prediction" here is referring to "load prediction", which is not the same as selection of a resource based on historical performance:

Al-Theneyan Pg. 60 line 10:

* resource load is predictable;

Al-Thenyan Pg. 85 lines 25 - 27:

> . . . For example, in [105], all resources are **assumed** to be dedicated and **their loads are predictable**, and tasks are assumed to be profiled where resource usage can be estimated in advance.

Continuing through Al-Theneyan's disclosure regarding selection of resources to which to assign a new processing job, please note (emphasis added by Applicant):

Al-Theneyan Pg. 70 last paragraph:

> . . . The Scheduler Agent **uses a queuing algorithm to select the next job to schedule**. . . .

Al-Theneyan Pg. 85 lines 1 - 2:

> . . . Scheduler Agent that in turns uses an **underlying queuing algorithm to select the next job to schedule.**

We believe the most conclusive and supporting citation from Al-Theneyan of our interpretation of their selection process or mechanism, however, appears in their section entitled "Future Work" (emphasis added by Applicant):

Al-Theneyan Pg. 169 lines 14 - 28:

> **8.2 Future Work**
>
> There are several areas of research that can be further explored. . . .
>
> Also, for efficient scheduling of resources, it is more useful for PROBE to use an estimate of the performance in the near future rather than current performance. Based on historical performance information, PROBE should be able to predict the performance each resource is going to deliver at the time of the allocation. This could result in a more efficient scheduling of the resources. Thus, another direction for future research is to extend the model of PROBE given in this thesis to handle predictions. . . .

We respectfully submit that Al-Theneyan is a doctoral thesis, not an issued patent, and as such, does not enjoy the presumption of enablement as issued patents do. And, we believe that such open-ended statements regarding intention to "explore" or "research further" are not statements which either (a) indicate Al-Theneyan completed or (b) knew how to complete such a job assigner which would assign jobs to grid resources based on historic performance. As such, they have seen the need for *potentially* doing this, so Al-Theneyan discloses collecting "*some* historical information", but Al-Theneyan gives no details of what type or specifics of historical information. Al-Theneyan is especially silent regarding how to utilize this generic historical information to affect selection of grid resources.

As we have disclosed such and claimed it, we believe that Al-Theneyan in view of Official Notice fails to teach or suggest, in an enabling manner, all of our claim steps, elements, and limitations, whereas we specifically claim (emphasis added by Applicant):

> assigning a job to said selected grid resource server ***wherein said selection and assignment is performed according to historical performance*** against client-driven performance requirements per said grid resource rating table.

For these reasons, we kindly request reconsideration of these rejections.

Supplemental IDS and Supplement Supporting Extrinsic Evidence

We are submitting herewith a number of documents for the Examiner's consideration, which fall into two categories:

(a) Information regarding the Doctoral program at Old Dominion University, which fails to show a requirement of developing a working system (e.g. prototype, working model, etc.), but only requires a dissertation which "represent[s] an achievement in research and must be a significant contribution in the field.". Our contention is that a doctoral dissertation such as this does not enjoy a presumption of enablement as required of a prior art reference under 35 U.S.C. §102 or 35 U.S.C. §103(a).

(b) Updated examination correspondence in related patent application serial number 10/870,522, our docket AUS920040044US1, filed on 06/17/2004.

We also ask the Examiner to consider the following additional extrinsic evidence that OLTP and batch processing are considered to be quite different by those skilled in the art (emphasis added by Applicant):

> **OLTP** (On-Line Transaction Processing): A mode of processing that **(compared to batch and decision support)** is characterized by low cost, fast response time and high availability. In a broader sense, OLTP puts data on line where it can be instantly updated to reflect changes as they occur. In other words, the data processing models the actual business in real time, and a transaction converts this model from one business state to another. Tasks such as reservation scheduling and inventory control are especially complex; all the information must be current, and each piece of information is related to every other piece. With constant change as the norm, the coordination and integrity of the information are the keys to a successful business operation. (Source: Toolbox for IT, IT glossary by Craig Borysowich, biography available at http://it.toolbox.com/people/craigwb/, definition retrieved 01/18/2010 from http://it.toolbox.com/blogs/ enterprise-solutions/ ea-deliverable-sample-glossary-for-an-enterprise -application-strategy-project-27569)
>
> **OLTP** (online transaction processing) is a class of program that facilitates and manages

transaction-oriented applications, typically for data entry and retrieval transactions in a number of industries, including banking, airlines, mailorder, supermarkets, and manufacturers. Probably the most widely installed OLTP product is IBM's CICS (Customer Information Control System). Today's online transaction processing increasingly requires support for transactions that span a network and may include more than one company. For this reason, new OLTP software uses client/server processing and brokering software that allows transactions to run on different computer platforms in a network. (Source: WhatIs.com, retrieved on 01/18/2010)

OLTP Short for *On-Line Transaction Processing*. Same as ***transaction processing***.
Transaction processing: A type of computer processing in which the computer responds immediately to user requests. Each request is considered to be a transaction. Automatic teller machines for banks are an example of transaction processing. **The opposite of transaction processing is batch processing**, in which a batch of requests is stored and then executed all at one time. **Transaction processing requires interaction with a user**, whereas batch processing can take place without a user being present. (Source: Webopedia, retrieved on 01/18/2010 from http://www.webopedia.com)

Request for Indication of Allowable Subject Matter

We believe the present amendment places the remaining claim in condition for allowance. If, for any reason, it is believed that the claim is not in a condition for allowance, we respectfully request constructive recommendations per MPEP 707.07(j) II which would place the claim in condition for allowance without need for further proceedings. We will respond promptly to any Examiner-initiated interviews or to consider any proposed examiner amendments.

Respectfully,

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